

## CLAIMS

1. An image forming apparatus comprising:  
a moving body provided with a plurality of attach/detach  
5 sections, wherein a developing unit is attachable to and detachable from each of said attach/detach sections, and said developing unit has a developer containing section and an element with which communication is possible;  
a photoconductor on which a latent image can be formed;  
10 and  
an antenna for wirelessly communicating with said element of the developing unit attached to the attach/detach section;  
wherein a longitudinal direction of said antenna is in  
15 a direction of movement of said moving body.
2. An image forming apparatus according to claim 1, wherein said moving body moves rotatively.
- 20 3. An image forming apparatus according to claim 1, wherein a length of said antenna in said longitudinal direction is longer than a length of said element in said longitudinal direction.
- 25 4. An image forming apparatus according to claim 1, wherein said antenna is provided at a position that is in opposition to and extending over a first developing unit attached to a first attach/detach section and a second developing unit attached to a second attach/detach section  
30 that is adjacent to said first attach/detach section.

5. An image forming apparatus according to claim 4, wherein  
said antenna is provided at a position that is in  
opposition to at least either one of a first element provided  
5 in/on said first developing unit or a second element provided  
in/on said second developing unit.
6. An image forming apparatus according to claim 2, wherein  
said antenna is provided more to the outside than said  
10 element in a radial direction of rotation of said moving body.
7. An image forming apparatus according to claim 2, wherein  
said antenna is provided more to the outside than said  
element in a direction of a rotation axis of said moving body.  
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8. An image forming apparatus according to claim 1, wherein  
said antenna is capable of wirelessly communicating with  
said element of the developing unit that is moving.
- 20 9. An image forming apparatus according to claim 8, wherein  
said antenna is used to write information wirelessly  
into said element of the developing unit that is moving.
10. An image forming apparatus according to claim 1, wherein  
25 said antenna is capable of communicating with said  
element in a non-contact state with respect to said element.
11. An image forming apparatus according to claim 1, wherein  
said antenna is used to write, into said element,  
30 information indicating a remaining amount of developer

contained in the developing unit provided with that element.

12. An image forming apparatus according to claim 1, wherein  
said antenna writes, into said element, information  
5 indicating a usage amount of developer contained in the  
developing unit provided with that element.

13. An image forming apparatus according to claim 1, wherein:  
said image forming apparatus comprises an AC voltage  
10 supply section for supplying an AC voltage; and  
during a period from a start to an end of an image forming  
process, said image forming apparatus writes information into  
said element of the developing unit attached to said  
attach/detach section using said antenna when said AC voltage  
15 supply section is not supplying an AC voltage.

14. An image forming apparatus according to claim 13,  
wherein:  
said developing unit has a developer bearing body for  
20 bearing developer; and  
said AC voltage supply section supplies an AC voltage  
to said developer bearing body.

15. An image forming apparatus according to claim 13,  
25 wherein:  
said image forming apparatus comprises a charging member  
for charging said photoconductor; and  
said AC voltage supply section supplies an AC voltage  
to said charging member.

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16. An image forming apparatus according to claim 1, wherein:  
said image forming apparatus comprises an attach/detach  
opening through which said developing unit is attached to  
and detached from said attach/detach section;

5 in a state in which said developing unit is positioned  
at an opposing position where said developing unit is in  
opposition to said photoconductor due to movement of said  
moving body, development of said latent image with the  
developer contained in said developing unit is possible;

10 in a state in which said developing unit is positioned  
at a detaching position that is different from said opposing  
position due to movement of said moving body, detachment of  
said developing unit from said attach/detach section via said  
attach/detach opening is possible; and

15 during a period from when said developing unit arrives  
at said opposing position until when said developing unit  
arrives at said detaching position due to movement of said  
moving body, said image forming apparatus writes information  
into said element of said developing unit using said antenna.

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17. An image forming apparatus according to claim 13, wherein  
a difference between a maximum voltage value and a  
minimum voltage value of said AC voltage is 1000 volts or  
more.

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18. An image forming apparatus comprising:

a moving body provided with a plurality of attach/detach  
sections, wherein a developing unit is attachable to and  
detachable from each of said attach/detach sections, and said  
30 developing unit has a developer containing section and an

element with which communication is possible;

a photoconductor on which a latent image can be formed;

and

an antenna for wirelessly communicating with said  
5 element of the developing unit attached to the attach/detach  
section, wherein:

a longitudinal direction of said antenna is in a  
direction of movement of said moving body;

said moving body moves rotatively;

10 a length of said antenna in said longitudinal direction  
is longer than a length of said element in said longitudinal  
direction;

said antenna is provided at a position that is in  
opposition to and extending over a first developing unit  
15 attached to a first attach/detach section and a second  
developing unit attached to a second attach/detach section  
that is adjacent to said first attach/detach section;

said antenna is provided at a position that is in  
opposition to at least either one of a first element provided  
20 in/on said first developing unit or a second element provided  
in/on said second developing unit;

said antenna is capable of wirelessly communicating with  
said element of the developing unit that is moving;

said antenna is capable of communicating with said  
25 element in a non-contact state with respect to said element;  
and

said antenna is used to write, into said element,  
information indicating a remaining amount or a usage amount  
of developer contained in the developing unit provided with  
30 that element.

19. A developing unit comprising:

a developer containing section; and

an element with which communication is possible,

5 wherein:

said developing unit is capable of being attached to  
and detached from an attach/detach section of a main body  
of an image forming apparatus that includes: a moving body  
provided with a plurality of the attach/detach sections, said  
10 developing unit being attachable to and detachable from one  
of said attach/detach sections; a photoconductor on which  
a latent image can be formed; and an antenna for wirelessly  
communicating with said element of the developing unit  
attached to the attach/detach section; and

15 a longitudinal direction of said element is in a  
longitudinal direction of said antenna when said developing  
unit is attached to said attach/detach section.

20. A developing unit according to claim 19, wherein

20 said developing unit is capable of being attached to  
said attach/detach section of said moving body which moves  
rotatively.

21. A developing unit according to claim 19, wherein

25 a length of said element in said longitudinal direction  
is shorter than a length of said antenna in said longitudinal  
direction.

22. A developing unit according to claim 19, wherein

30 said element is capable of communicating with said

antenna in a non-contact state with respect to said antenna.

23. A developing unit according to claim 19, wherein  
said element stores information indicating a remaining  
5 amount of developer contained in the developing unit provided  
with that element.

24. A developing unit according to claim 19, wherein  
said element stores information indicating a usage  
10 amount of developer contained in the developing unit provided  
with that element.

25. A developing unit comprising:  
an element with which communication is possible using  
15 an antenna; and  
a developer containing section for containing developer,  
wherein  
a longitudinal direction of said antenna intersects with  
a longitudinal direction of said developing unit.

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26. A computer system comprising:  
a computer unit; and  
an image forming apparatus that is connected to said  
computer unit and that includes

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a moving body provided with a plurality of  
attach/detach sections, wherein a developing unit  
is attachable to and detachable from each of said  
attach/detach sections, and said developing unit  
has a developer containing section and an element  
30 with which communication is possible,

a photoconductor on which a latent image  
can be formed, and  
an antenna for wirelessly communicating  
with said element of the developing unit attached  
5 to the attach/detach section,  
wherein a longitudinal direction of said antenna is in  
a direction of movement of said moving body.

27. An image forming apparatus comprising:  
10 a moving body provided with a plurality of attach/detach  
sections, wherein a developing unit is attachable to and  
detachable from each of said attach/detach sections, and said  
developing unit has a developer containing section and an  
element into which information can be written;  
15 a photoconductor on which a latent image can be formed;  
a writing member for writing information into said  
element; and  
an attach/detach opening through which said developing  
unit is attached to and detached from the attach/detach section,  
20 wherein:  
in a state in which said developing unit is positioned  
at an opposing position where said developing unit is in  
opposition to said photoconductor due to movement of said  
moving body, development of said latent image with the  
25 developer contained in said developing unit is possible;  
in a state in which said developing unit is positioned  
at a detaching position that is different from said opposing  
position due to movement of said moving body, detachment of  
said developing unit from said attach/detach section via said  
30 attach/detach opening is possible; and



during a period from when said developing unit arrives at said opposing position until when said developing unit arrives at said detaching position due to movement of said moving body, said writing member writes information into said element of said developing unit.

28. An image forming apparatus according to claim 27, wherein during a period from when a developer bearing body provided in the developing unit that has arrived at said opposing position ends developing said latent image until when said developing unit arrives at said detaching position, said writing member writes information into said element of said developing unit.

29. An image forming apparatus according to claim 28, wherein during a period from when said developing unit starts moving from said opposing position until when said developing unit arrives at said detaching position due to movement of said moving body, said writing member writes information into said element of said developing unit.

30. An image forming apparatus according to claim 27, wherein if, during the period from when said developing unit starts moving from said opposing position until when said developing unit arrives at said detaching position, another developing unit adjacent to said developing unit on the upstream side therefrom in a direction of movement of said moving body is to arrive at said opposing position, then said writing member writes information into said element of said developing unit during a period until said other

developing unit arrives at said opposing position.

31. An image forming apparatus according to claim 27, wherein:

5       said image forming apparatus comprises an AC voltage supply section for supplying an AC voltage; and  
      said writing member writes information into said element of the developing unit attached to said attach/detach section when said AC voltage supply section is not supplying an AC  
10   voltage.

32. An image forming apparatus according to claim 31, wherein:

      said developing unit has a developer bearing body for  
15   bearing developer; and  
      said AC voltage supply section supplies an AC voltage to said developer bearing body.

33. An image forming apparatus according to claim 31, wherein:

20       said image forming apparatus comprises a charging member for charging said photoconductor; and  
      said AC voltage supply section supplies an AC voltage to said charging member.

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34. An image forming apparatus according to claim 27, wherein  
      said writing member writes information into said element in a non-contact state with respect to said element.

30   35. An image forming apparatus according to claim 31, wherein

a difference between a maximum voltage value and a minimum voltage value of said AC voltage is 1000 volts or more.

5 36. An image forming apparatus according to claim 27, wherein said writing member writes, into said element, information indicating a remaining amount of developer contained in the developing unit provided with said element.

10 37. An image forming apparatus according to claim 27, wherein said writing member writes, into said element, information indicating a usage amount of developer contained in the developing unit provided with said element.

15 38. An image forming apparatus comprising:

a moving body provided with a plurality of attach/detach sections, wherein a developing unit is attachable to and detachable from each of said attach/detach sections, and said developing unit has a developer containing section and an  
20 element into which information can be written;

a photoconductor on which a latent image can be formed;

a writing member for writing information into said element; and

25 an attach/detach opening through which said developing unit is attached to and detached from the attach/detach section, wherein:

in a state in which said developing unit is positioned at an opposing position where said developing unit is in opposition to said photoconductor due to movement of said  
30 moving body, development of said latent image with the

developer contained in said developing unit is possible;

in a state in which said developing unit is positioned at a detaching position that is different from said opposing position due to movement of said moving body, detachment of  
5 said developing unit from said attach/detach section via said attach/detach opening is possible;

during a period from when said developing unit starts moving from said opposing position until when said developing unit arrives at said detaching position due to movement of  
10 said moving body, said writing member writes information into said element of said developing unit;

if, during the period from when said developing unit starts moving from said opposing position until when said developing unit arrives at said detaching position, another  
15 developing unit adjacent to said developing unit on the upstream side therefrom in a direction of movement of said moving body is to arrive at said opposing position, then

said writing member writes information into said element of said developing unit during a period until said other  
20 developing unit arrives at said opposing position;

said developing unit has a developer bearing body for bearing developer;

said image forming apparatus comprises an AC voltage supply section for supplying an AC voltage;

25 said AC voltage supply section supplies an AC voltage to said developer bearing body;

said writing member writes information into said element of the developing unit attached to said attach/detach section when said AC voltage supply section is not supplying an AC  
30 voltage to said developer bearing body;

said writing member writes information into said element  
in a non-contact state with respect to said element;

a difference between a maximum voltage value and a  
minimum voltage value of said AC voltage is 1000 volts or  
5 more; and

said writing member writes, into said element,  
information indicating a remaining amount or a usage amount  
of developer contained in the developing unit provided with  
said element.

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39. An image forming apparatus comprising:

a moving body provided with a plurality of developing  
unit attach/detach sections, wherein a developing unit having  
a developer containing section is attachable to and detachable  
15 from each of said developing unit attach/detach sections;

a photoconductor unit attach/detach section to and from  
which a photoconductor unit can be attached and detached,  
wherein said photoconductor unit has a photoconductor and  
an element into which information can be written;

20 a writing member for writing information into said  
element; and

an attach/detach opening through which said developing  
unit is attached to and detached from the attach/detach section,  
wherein:

25 in a state in which said developing unit is positioned  
at an opposing position where said developing unit is in  
opposition to said photoconductor due to movement of said  
moving body, development of a latent image formed on said  
photoconductor with the developer contained in said developing  
30 unit is possible;

in a state in which said developing unit is positioned at a detaching position that is different from said opposing position due to movement of said moving body, detachment of said developing unit from said developing unit attach/detach section via said attach/detach opening is possible; and

5 during a period from when said developing unit arrives at said opposing position until when said developing unit arrives at said detaching position due to movement of said moving body, said writing member writes information into said element of said photoconductor unit.

40. An image forming apparatus according to claim 39, wherein during a period from when a developer bearing body provided in the developing unit that has arrived at said opposing position ends developing said latent image until

15 when said developing unit arrives at said detaching position, said writing member writes information into said element of said photoconductor unit.

20 41. An image forming apparatus according to claim 40, wherein during a period from when said developing unit starts moving from said opposing position until when said developing unit arrives at said detaching position due to movement of said moving body, said writing member writes information into

25 said element of said photoconductor unit.

42. An image forming apparatus according to claim 39, wherein if, during the period from when said developing unit starts moving from said opposing position until when said

30 developing unit arrives at said detaching position, another

developing unit adjacent to said developing unit on the upstream side therefrom in a direction of movement of said moving body is to arrive at said opposing position, then  
said writing member writes information into said element  
5 of said photoconductor unit during a period until said other developing unit arrives at said opposing position.

43. An image forming apparatus according to claim 39, wherein:

10 said image forming apparatus comprises an AC voltage supply section for supplying an AC voltage; and  
said writing member writes information into said element of said photoconductor unit attached to said photoconductor unit attach/detach section when said AC voltage supply section  
15 is not supplying an AC voltage.

44. An image forming apparatus according to claim 43, wherein:

said developing unit has a developer bearing body for  
20 bearing developer; and  
said AC voltage supply section supplies an AC voltage to said developer bearing body.

45. An image forming apparatus according to claim 43, wherein:

25 said image forming apparatus comprises a charging member for charging said photoconductor; and  
said AC voltage supply section supplies an AC voltage to said charging member.

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46. An image forming apparatus according to claim 39, wherein  
said writing member writes information into said element  
in a non-contact state with respect to said element.
- 5 47. An image forming apparatus according to claim 43, wherein  
a difference between a maximum voltage value and a  
minimum voltage value of said AC voltage is 1000 volts or  
more.
- 10 48. An image forming apparatus according to claim 39, wherein  
said writing member writes, into said element,  
information indicating a remaining amount of developer  
contained in the developing unit.
- 15 49. An image forming apparatus according to claim 39, wherein  
said writing member writes, into said element,  
information indicating a usage amount of developer contained  
in the developing unit provided with said element.
- 20 50. A computer system comprising:  
a computer unit; and  
an image forming apparatus that is connected to said  
computer unit and that includes  
a moving body provided with a plurality of  
25 attach/detach sections, wherein a developing unit  
is attachable to and detachable from each of said  
attach/detach sections, and said developing unit  
has a developer containing section and an element  
into which information can be written;  
30 a photoconductor on which a latent image



can be formed;

a writing member for writing information into said element; and

5 an attach/detach opening through which said developing unit is attached to and detached from the attach/detach section;

10 wherein, in a state in which said developing unit is positioned at an opposing position where said developing unit is in opposition to said photoconductor due to movement of said moving body, development of said latent image with the developer contained in said developing unit is possible; and

15 wherein, in a state in which said developing unit is positioned at a detaching position that is different from said opposing position due to movement of said moving body, detachment of said developing unit from said attach/detach section via said attach/detach opening is possible;

20 wherein, during a period from when said developing unit arrives at said opposing position until when said developing unit arrives at said detaching position due to movement of said moving body, said writing member writes information into said element of said developing unit.

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51. A computer system comprising:

a computer unit; and

an image forming apparatus that is connected to said computer unit and that includes

30 a moving body provided with a plurality of

developing unit attach/detach sections, wherein  
a developing unit having a developer containing  
section is attachable to and detachable from each  
of said developing unit attach/detach sections;

5           a photoconductor unit attach/detach  
section to and from which a photoconductor unit  
can be attached and detached, wherein said  
photoconductor unit has a photoconductor and an  
element into which information can be written;

10           a writing member for writing information  
into said element; and

          an attach/detach opening through which said  
developing unit is attached to and detached from  
the attach/detach section;

15           wherein, in a state in which said developing  
unit is positioned at an opposing position where  
said developing unit is in opposition to said  
photoconductor due to movement of said moving body,  
development of a latent image formed on said  
20           photoconductor with the developer contained in  
said developing unit is possible; and

          wherein, in a state in which said developing  
unit is positioned at a detaching position that  
is different from said opposing position due to  
25           movement of said moving body, detachment of said  
developing unit from said developing unit  
attach/detach section via said attach/detach  
opening is possible;

          wherein, during a period from when said developing unit  
30           arrives at said opposing position until when said developing

unit arrives at said detaching position due to movement of said moving body, said writing member writes information into said element of said photoconductor unit.